

In the Claims:

Please add new claims 15-17 as set forth below in the "Listing of Claims".

LISTING OF CLAIMS

Claim 1 (Original): A semiconductor device comprising an insulation film consisting of a fluoridation carbon film that has been subjected to thermal history of 420°C or lower, wherein an amount of hydrogen atoms included in the fluoridation carbon film is 3 atomic % or less before the fluoridation carbon film is subjected to the thermal history.

Claim 2 (Original): A semiconductor device according to claim 1, wherein the insulation film is an interlayer insulation film.

Claim 3 (Original): A manufacturing method of a semiconductor device comprising the steps of: generating a plasma of a source gas consisting of a chemical compound of carbon and fluorine and including hydrogen atoms of 1×10^{-3} atomic % or less, and forming an insulating film consisting of a fluoridation carbon film that includes hydrogen atoms of 3 atomic % or less, on a substrate, by using the plasma of the source gas.

Claim 4 (Original): A manufacturing method of a semiconductor device according to claim 3, further comprising: heating the substrate at a temperature of 420°C or lower, after the step of forming the insulating film.

Claim 5 (Original): A manufacturing method of a semiconductor device according to claim 3 or 4, wherein the chemical compound of carbon and fluorine is C_5F_8 .

Claim 6 (Original): A gas for a plasma CVD process, comprising an unsaturated carbon fluoride compound and a chemical compound including a hydrogen atom, the amount of the chemical compound including a hydrogen atom being 90 weight ppm or less.

Claim 7 (Original): The gas for the plasma CVD process according to claim 6, wherein the amount of the chemical compound including a hydrogen atom is 10 weight ppm or less.

Claim 8 (Original): The gas for the plasma CVD process according to claim 6, further comprising water in the amount of 3 weight ppm or less.

Claim 9 (Original): The gas for the plasma CVD process according to any of claims 6 to 8, wherein the unsaturated carbon fluoride compound is octafluorocyclopentene, hexafluoro-2-pentyne, or hexafluoro-1,3-butadiene.

Claim 10 (Previously Presented): A manufacturing method of the gas for the plasma CVD process according to any of claims 6 to 8, comprising the step of bringing a composition of an unsaturated carbon fluoride compound and a chemical compound including a hydrogen atom in contact with burned adsorbent.

Claim 11 (Previously Presented): A forming method of an insulation film comprising the step of: conducting a plasma CVD process by using the gas for the plasma CVD process according to any of claims 6 to 8.

Claim 12 (Original): A gas for a plasma CVD process, comprising an unsaturated carbon fluoride compound, and hydrogen atoms in the amount of 1×10^{-3} atomic % or lower.

Claim 13 (Original): A gas for a plasma CVD process, comprising an unsaturated carbon fluoride compound, and water in the amount of 0.5 weight ppm or less.

Claim 14 (Original): The gas for the plasma CVD process according to claim 13, wherein the amount of water is 0.1 weight ppm or less.

Claim 15 (New): A semiconductor device according to claim 1, wherein the fluoridation carbon film comprises more than 0 atomic % of said hydrogen atoms.

Claim 16 (New): A manufacturing method of a semiconductor device according to claim 3, wherein the source gas includes more than 0 atomic % of said hydrogen atoms, and the fluoridation carbon film includes more than 0 atomic % of said hydrogen atoms.

Claim 17 (New): A gas according to claim 12, comprising more than 0 atomic % of said hydrogen atoms.